

WHAT IS CLAIMED IS:

1. A disk cartridge having a disk and a case for housing said disk, said disk comprising:
5 a center hole provided in a center thereof;
 a disk holder area which is annular and extends outwardly from said center hole;
 a transition area which is annular and extends outwardly from said disk holder area, said transition
10 area not for use of recording information; and
 an information recording area which is annular and extends outwardly from said transition area, said information recording area for use of recording information, wherein:
15 said information recording area comprises:
 a first annular zone for recording information unrewritably, residing on an inner side in radial directions of said disk; and
 a second annular zone for recording information
20 rewritably, residing outwardly from said first annular zone in the radial directions, and
 said transition area and said first annular zone constitutes a third annular zone; and
 a disk cartridge identification information which is
25 uniquely assigned to said disk is recorded in a portion of said third annular zone, and is provided to be visibly discernible from outside said case.
2. The disk cartridge as claimed in claim 1, wherein a
30 type of recording of said disk cartridge identification information in said third annular zone is different from

a type of recording information in said information recording area.

3. The disk cartridge as claimed in claim 1, wherein:

5 a lead-in zone capable of recording lead-in information is defined to include said first annular zone and a portion of said second zone adjacent to said first annular zone on an inner side in the radial directions of the disk, and

10 a remaining zone except for said lead-in zone in said second annular zone comprises a data zone capable of recording contents information and a lead-out zone capable of recording lead-out information.

15 4. The disk cartridge as claimed in claim 3, wherein a contents identification information which is assigned to each piece of contents recorded in said data zone for identification thereof and a contents index information descriptive of the contents recorded in said data zone
20 are recorded in said data zone.

5. The disk cartridge as claimed in claim 1, wherein recording of said disk cartridge identification information in said third annular zone is performed by
25 forming a plurality of rectangular patterns each having a length in radial directions of an optical disk and a width in circumferential directions thereof, spaced apart from each other in the circumferential directions.

30 6. The disk cartridge as claimed in claim 1, wherein said disk cartridge identification information is

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expressed by a combination of compression and rarefaction of a gap between said plurality of rectangular patterns in said circumferential directions.

5 7. The disk cartridge as claimed in claim 1, wherein said disk cartridge identification information is expressed by a combination of sizes in width directions of said plurality of rectangular patterns.

10 8. The disk cartridge as claimed in claim 5, wherein said plurality of rectangular patterns are formed by any one of a laser marking and a laser trimming processes.

15 9. The disk cartridge as claimed in claim 5, wherein: a phase change recording film is provided in said third annular zone of said disk, and
 said plurality of rectangular patterns are formed by a laser beam irradiation on said phase change recording film so as to cause a phase change in said phase change
20 recording film.

10. The disk cartridge as claimed in claim 5, wherein said plurality of rectangular patterns are formed by a molding process.

25 11. The disk cartridge as claimed in claim 1, wherein said disk cartridge identification information is recorded to be optically reproducible.

30 12. The disk cartridge as claimed in claim 1, wherein said disk cartridge identification information is

recorded to be reproducible by a pickup which optically reproduces information recorded in said information recording area.

5 13. The disk cartridge as claimed in claim 1, wherein said disk cartridge identification information comprises a combination of characters.

10 14. The disk cartridge as claimed in claim 13, wherein said characters contain at least either one of numerals and alphabetic characters.

15 15. The disk cartridge as claimed in claim 1, further comprising an auxiliary memory provided on said disk cartridge for storing said disk cartridge identification information, said auxiliary memory arranged to allow for its disk cartridge identification information to be read with either one of a contacting pickup and a non-contacting pickup.

20 16. The disk cartridge as claimed in claim 1, wherein a bar code seal indicating said disk cartridge identification information is pasted on said disk cartridge.

25 17. The disk cartridge as claimed in claim 1, wherein a seal having said disk cartridge identification information formed visibly is pasted on said disk cartridge.

30 18. The disk cartridge as claimed in claim 1, wherein

said disk cartridge identification information which is recorded in a portion of said third annular zone comprises a combination of characters of N digits, while said disk cartridge identification information which is 5 provided visibly from outside of said case comprises a combination of characters of M digits, where M < N, and being lower M digits including a last one digit in the N digits.

10 19. A method of manufacturing a disk cartridge having a disk having an information recording area formed for recording information and a case for housing said disk, said method comprising:

a first step of forming:

15 a disk holder area which extends annularly and outwardly from a center hole provided in a center of said disk;

a transition area which extends annularly and outwardly from said disk holder area, not for use of 20 recording information; and

an information recording area for recording information which extends annularly and outwardly from said transition area, said information recording area comprising:

25 a first annular zone for recording information unrewratably, residing on an inner side in radial directions of said disk; and

a second annular zone for recording information rewritably, residing on an outer side in the 30 radial directions from said first annular zone;

a second step of incorporating said disk which is

manufactured in said first step into the case;
a third step of recording a disk cartridge
identification information assigned uniquely to said disk
into a third annular zone which includes said transition
5 area and said first annular zone; and
a fourth step of providing said disk cartridge
identification information to be visible from outside
said case.

10 20. The method of manufacturing a disk cartridge as
claimed in claim 19, wherein said third step of recording
said disk cartridge identification information in said
third annular zone is executed in a different method of
recording from a method of recording of information in
15 said information recording area.

21. The method of manufacturing a disk cartridge as
claimed in claim 19, wherein, in said first step, said
first annular zone and the portion of said second annular
20 zone residing on the inner side in the radial directions
and adjacent to said first annular zone are formed as a
lead-in zone which is capable of recording lead-in
information, and a remaining zone of said second annular
zone excepting said lead-in zone is formed as a data zone
25 capable of recording contents information and as a lead-
out zone capable of recording lead-out information.

22. The method of manufacturing a disk cartridge as
claimed in claim 19, wherein said third step of recording
30 said disk cartridge identification information in said
third annular zone comprises forming a plurality of

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rectangular patterns, each having a length in radial directions of said optical disk and a width in circumferential directions thereof, spaced apart therebetween in the circumferential directions.

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23. The method of manufacturing a disk cartridge as claimed in claim 22, wherein said disk cartridge identification information recorded in said third step is expressed by a combination of compression and rarefaction
10 in a gap between said plurality of rectangular patterns in said circumferential directions.

24. The method of manufacturing a disk cartridge as claimed in claim 22, wherein said disk cartridge identification information recorded in said third step is expressed by a combination of different sizes in width
15 directions of said plurality of rectangular patterns.

25. The method of manufacturing a disk cartridge as
20 claimed in claim 22, wherein said third step of forming said plurality of rectangular patterns is executed by a laser marking process.

26. The method of manufacturing a disk cartridge as
25 claimed in claim 22, wherein said third step of forming said plurality of rectangular patterns is executed by a molding process.

27. The method of manufacturing a disk cartridge as
30 claimed in claim 22, wherein:
a phase change recording film is provided on said

third annular zone of said disk, and

said third step of forming said plurality of rectangular patterns is executed by irradiation of a laser beam on said phase change recording film so as to

5 cause a phase change in said phase change recording film.

28. The method of manufacturing a disk cartridge as claimed in claim 19, wherein said disk cartridge identification information recorded in said third step is

10 recorded in a form which is optically reproducible.

29. The method of manufacturing a disk cartridge as claimed in claim 19, wherein said disk cartridge identification information recorded in said third step is

15 recorded in a form which is reproducible by a pickup which optically reproduces information recorded in said information recording area.

30. The method of manufacturing a disk cartridge as

20 claimed in claim 19, wherein said disk cartridge identification information recorded in said third step comprises a combination of characters.

31. The method of manufacturing a disk cartridge as

25 claimed in claim 30, wherein said combination of characters comprises at least one of numerical and alphabetic characters.

32. The method of manufacturing a disk cartridge as

30 claimed in claim 19, wherein said disk cartridge identification information recorded in a portion of said

third annular zone in said third step comprises a combination of characters of N digits while the disk cartridge identification information provided visibly from outside said case in said fourth step comprises a
5 combination of characters of M digits which correspond to lower M digits including a last one digit in said N digits, wherein M < N.

33. A recording/reproducing system having a disk
10 cartridge and a recording/reproducing apparatus, wherein:
 said disk cartridge includes:
 a disk capable of recording/reproducing information and
 a case for accommodating said disk, wherein:
15 said disk records a disk cartridge identification information which is uniquely assigned to said disk, and
 said disk cartridge identification information is provided visibly on said case, and
20 said recording/reproducing apparatus comprises:
 recording means for recording contents of information, contents identification information which is assigned uniquely to each of said contents and a contents index information descriptive of said contents on a disk
25 in said disk cartridge which is loaded in said recording/reproducing apparatus;
 reproducing means for reproducing said disk cartridge identification information, said contents, said contents identification information and said contents
30 index information which are recorded in said disk;
 a memory for storing said disk cartridge

identification information, said contents identification information and said contents index information which are reproduced by said reproducing means, as correlated therebetween; and

5 retrieval means for retrieving information via said disk cartridge identification information, said contents identification information and/or said contents index information which are recorded in said memory.

10 34. The recording/reproducing system as claimed in claim 33, wherein:

 said disk has:

 a center hole provided in the center thereof;

 a disk holder area which extends annularly and

15 radially from said center hole;

 a transition area which extends annularly and radially from said disk holder area, said transition area not for use of recording information; and

20 an information recording area which extends annularly and radially from said transition area for recording information, wherein:

25 said information recording area comprises a first annular zone which exists on an inner side in radial directions of the disk for recording information unreWritable, and a second annular zone which exists on an outer side in radial directions thereof for recording information rewritable, and

30 a third annular zone which comprises said transition area and said first annular zone is set up for recording said disk cartridge identification information in a portion of said third annular zone.

35. The recording/reproducing system as claimed in claim
33, wherein a type of recording of said disk cartridge
identification information in said third annular zone is
5 different from a type of recording of information in said
information recording area.

36. The recording/reproducing system as claimed in claim
33, wherein:

10 a lead-in zone capable of recording a lead-in
information is provided in said first zone and a portion
of said second annular zone residing on an inner side in
radial directions of the disk, adjacent to said first
annular zone, and

15 a remaining portion of said second annular zone
excepting said lead-in zone comprises a data zone capable
of recording contents information and a lead-out zone
capable of recording a lead-out information.

20 37. The recording/reproducing system as claimed in claim
33, wherein said contents identification information and
said contents index information are recorded in a portion
of said second annular zone corresponding to said third
annular zone.

25 38. The recording/reproducing system as claimed in claim
33, wherein said retrieval of information using said
retrieval means comprises searching said contents
identification information and said contents index
30 information using said disk cartridge identification
information as a key.

39. The recording/reproducing system as claimed in claim
33, wherein said retrieval of information using said
retrieval means comprises searching said disk cartridge
5 identification information using said contents index
information as a key.

40. The recording/reproducing system as claimed in claim
33, further comprising a display for displaying
10 information retrieved by said retrieval means.

41. The recording/reproducing system as claimed in claim
33, further comprising information generating means for
generating said contents identification information and
15 said contents index information, wherein said recording
means comprises recording said contents identification
information and said contents index information which are
output from said information generating means on said
disk.

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42. The recording/reproducing system as claimed in claim
41, wherein said information generating means comprises
operating means for manually inputting information, and
wherein generation of said contents index information by
25 said information generating means is enabled by operation
of said operating means.

43. The recording/reproducing system as claimed in claim
42, wherein said contents comprises added information
30 which contains at least one of a contents ID for
identifying said contents and a contents index

information descriptive of said contents, and wherein
said information generating means carries out generating
at least either one of said contents identification
information in accordance with said contents ID and said
5 contents index information in accordance with said
contents of the added information.

44. The recording/reproducing system as claimed in claim
43, wherein:

10 said contents comprises a broadcasting program which
is broadcast in a BS digital, a CS digital, or a ground
wave digital broadcasting, and
 said added information comprises electronic program
information broadcast corresponding to said broadcast
15 program.

45. The recording/reproducing system as claimed in claim
33, wherein:

16 said contents are broadcast programs, and
20 said contents index information contains descriptive
information at least one of a program title, a
broadcasting hour, an outline of the program and a
keyword descriptive of said broadcast program.

25 46. The recording/reproducing system as claimed in claim
33, wherein said contents index information includes
information of a type at least of characters, images and
voice.